

CONCLUSION

For all of the above reasons, applicant submits that the specification, drawings, and the new claims are now in proper form, and that the new claims all define patentably over the prior art. Therefore applicant submits that this application is now in condition for allowance, which action applicant respectfully solicits.

CONDITIONAL REQUEST FOR CONSTRUCTIVE ASSISTANCE

Applicant has amended the specification, drawings, and claims of this application so that they are proper, definite, and define novel structure which is also unobvious. If for any reason this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. § 706.03(d) and § 707.07(j) in order that the applicant can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,


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ADDENDUM I
Quotations From The Cited References

Quotes From Krueger

Column 2, Line 31-35 of Krueger states, ``In one of the embodiments of the invention, a filtrate receptacle is secured to the body to receive the filtrate as it passes through the filter medium. The receptacle is provided with a pour spout to permit the filtrate to be poured from the receptacle.''

Column 2, Line 39-45 of Krueger states, ``The top portion of body 7 has an outwardly extending lip formed integral therewith so that a snap-on top or cap 11 can be retained in an airtight relationship on the body 7. A similar outwardly extending lip 13 is provided on the bottom portion of body 7 which is utilized to retain a snap-on funnel like member 15.''

Column 2, Line 54-66 of Krueger states, ``The ribs 21, 23, 25, and 27 all have upper surfaces which lie in a common plane and which are adapted to support a sheet of filter medium 29. By employing ribs having a relatively small upper surface, substantially all of the area of the sheet of the filter medium 29 is available for filtration while still providing adequate support for the filter medium.

The body 7 has an inturned shoulder 31 at its bottom extremity to hold the filter medium 29 in place during transportation, storage, and use. The shoulder 31 also clamps the edge of the filter medium so that there is no chance of liquid bypassing the filter medium.''

Column 3, Line 27-33 of Krueger states, ``Preferably the filter unit is made to a relatively soft plastic so that the parts can be readily snapped together, such as polyethylene, polypropylene or nylon. On the other hand, certain parts can be made of hard plastic. For example, body 7 may be made of a hard acrylic resin while the end members may be of a relatively soft plastic.''

Column 3, Line 44-51 of Krueger states, ``As can be seen particularly from FIGURE 4, the body 56 is provided with an inwardly extending annular lip portion 56a which overlies the filter disc 59. It can be seen that the body 56 forms a chamber 61 for receiving the liquid to be filtered by the filter unit. The liquid passes downwardly to the filter medium 59 through the opening 62 formed by the annular lip portion 56a.''

Column 3, Line 54-62 of Krueger states, ``Means is provided for supporting the lower surface of the filter medium or

disc 59 and forming a liquid-tight seal between the filter medium and the body 56 and consists of a funnel-like member 63. The funnel like member 63 is provided with an annular rim-like portion 63a which provides a planar surface parallel to the plane of the filter medium 59 and serving to support the outer margin of the filter medium immediately underlying the lip portion 56a of the body 56.

Column 3, Line 71- Column 4, Line 10, of Krueger states, ``The funnel-like member 63 is provided with additional means for providing adequate support for the filter medium 59 which consists of a plurality of diametrically extending ribs 66 which are displaced angularly from each other. The funnel-like member 63 is also provided with additional ribs 67 and 68 which extend radially of the funnel-like member and which are angularly displaced from each other and the ribs 66. As can be seen particularly in FIGURE 5, the ribs 67 extend from the rim-like portion 63a to the opening 64 whereas the ribs 67 and 68 do not extend to the opening 64. The ribs 66, 67 and 68 are provided with upper surfaces which lie in the same plane as the upper surface of the rim-like portion 63a and immediately underlie the filter medium 59 to support the same."

Column 4, Line 19-29 of Krueger states, ``The upper portion of the side wall 72 is provided with a substantially cylindrical rim-like portion 72a which is adapted to receive the funnel-like member 63, the filter medium 59 and the lower extremity of body 56. A shoulder 76 is provided in the side wall 72 for supporting the outer margin of the funnel-like member 63. It is generally preferable that the cylindrical body 56 be permanently secured to the rim like portion 72a by suitable means such as cement so that an integral unit is formed by the body 56 and the receptacle 72 with the filter medium 59 being disposed therebetween.

Column 4, Line 23-25 of Krueger states, ``A shoulder 76 is provided in the side wall 72 for supporting the outer margin of the funnel-like member 63.

Column 4, Line 46-49 of Krueger states, ``Thus, the filter unit can be formed either of polypropylene or polycarbonate. Polycarbonate is desirable because it is glass clear whereas polypropylene is desirable because it is more resistant chemically."

Column 5, Line 10-12 of Krueger states, ``By securing the body 56 to the receptacle 72, it is possible to prevent re-use of the filter unit because of inability to replace the filter medium.

Column 5, Line 36-38 of Krueger states in claim 1, ``said body having an inwardly extending, substantially non-

deformable lip overlying the filter medium and serving to permanently retain the filter medium..."

Quotes From Jones

Column 1, Line 6-8, of Jones states, ``This invention relates to a solid phase extraction disk, disk holder and apparatus for providing enhanced recovery and precision.''

Column 1, Line 13-18 of Jones states, ``The basic objective of such an apparatus is to filter the solid portion of the sample (if any) and to selectively absorb compounds from the liquid portion onto a sorbent. The analyte of interest can be subsequently extracted from the solvent and eluted from the sorbent with a minimal amount of an appropriate solvent.''

Column 1, Line 19-21 of Jones states, ``Typical conventional SPE disk apparatus disposes a thin **sorbent-impregnated** SPE disk between the flange of an upper funnel and the flange of a lower base.''

Column 1, Line 43-50 of Jones states, ``In accordance with the invention, an SPE extraction apparatus is provided with a new SPE disk which eliminates radial wicking and weeping and new disk holding apparatus which minimizes the indirect flow region and minimizes the number of sample transfers required. The new SPE disk **encapsulates the sorbent/fiber matrix between two porous outer layers** which can be filters, united into an essentially non-porous rim around the disk perimeter.''

Column 2, Line 30-33 of Jones states, ``The SPE disk 12 is commonly a mat of glass or polymer fibers impregnated with particles of chemical separation media, for example silica gel derivatized with octadecane.''

Column 2, Line 52 to Column 3, Line 4 of Jones states, ``In operation the disk is first washed with elution solvent (and activating solvent or conditioning solvent if needed). It is then wetted with a small volume of the sample to be filtered. Capillary action draws liquid into the direct flow region of the disk (the region between the openings) and into the indirect flow space between the flanges. The vacuum is turned on to initiate suction of filtrate through the disk membrane, and more sample is added to the funnel. The addition process is continued until all of the sample to be filtered has passed through the disk or the sorbent capacity of the disk is saturated.

The analytes bound by the sorbents and trapped in solids filtered out by the disk are collected by elution. The vacuum is disconnected and a small (minimal) amount of

extraction solvent is applied. During a ``soak'' period, analytes bound by the sorbents within the disk desorb and partition into the extraction solvent. After soaking, vacuum is reapplied, and the solvent is collected. SPE analysis of a large sample may require several soak periods, particularly if solid materials are present.'

Column 3, Line 16-17 of Jones states, ``Common elution solvents, such as hexane or methanol, have low viscosity and high volatility,''

Column 3, Line 29-45 of Jones states, ``FIGS. 3A and 3B are a schematic cross section and a top view, respectively, of an improved SPE disk in accordance with the invention. **The improved disk comprises a conventional SPE disk 30 encapsulated within a pair of membrane layers 31, 32.** The disk 30 is dimensioned and sized within the direct flow path of a disk holder (not shown). The portions of layers 31, 32 overlying and underlying the disk in the direct flow path are porous and permit direct flow of sample through the disk. The portions of layers 31, 32 extending beyond the periphery of the disk 30 are laminated together to form an essentially non-porous rim 33 around the disk perimeter. Preferably the membrane layers are thin layers of plastic such as films of polypropylene. The pores or openings are sufficiently large e.g. 20 micrometers, to permit liquid to easily pass into and out of the SPE disk. The disk 30 can be glass fiber or polymer fiber, such as polyethylene, containing sorbent particles.'

Column 3, Line 46 to Column 4, Line 5 of Jones states, ``FIG. 4A is a schematic cross section of an improved disk holding apparatus in accordance with the invention comprising a disk holder 40 and a ring 45. The disk holder comprises in essence, a hollow ring having an aperture 41, a recessed region 42 surrounding the aperture on the upper surface for receiving and centering an SPE disk 30 such as the encapsulated disk of FIG. 3. In addition, the holder includes a first projecting portion 43 surrounding the aperture on the lower surface for centering the input port of the base and thereby centering the holder in relation to the port. It also includes a second projecting portion 44 on the upper surface for centering the output port of the funnel. The holder thus centers the active portion of the disk in the direct flow path of the apparatus. A second hollow ring 45 communicates with the SPE disk 30 and the holder 40 in a complementary relationship. Temporary liquid sealing of the SPE disk into the apparatus occurs at the recessed area 42 of the holder in combination with the essentially non-porous rim 34 (33) of the SPE disk and the downward projecting portion 46 of the hollow ring 45. Additional sealing of the ring and holder takes place at the interface between surfaces 47 and 48; 49 and 18; and 38 and

19, respectively. This unique design enables a multitude of various funnels 10 to be combined with various bases 11 and still allow the active area of disk 30 to always be in the direct flow path of the apparatus. The holder and ring are preferably made of polytetrafluorethylene (PTFE)."

Column 4, Line 7-13 of Jones states, "FIG. 5 is an exploded view of a first embodiment of SPE apparatus in accordance with the invention. It differs from the conventional apparatus of FIG. 1 in that the encapsulated SPE disk 50 of FIG. 3 is held in the direct flow path by the hollow rings 45 and 40. Additionally, screen 13 may be held in place by a removable PTFE ring 23 which facilitates removal of the screen 13 from base 11."

Column 4, Line 15-17 of Jones states, "The advantages of this apparatus are manifold. Because the edges of the disk are sealed in an essentially non-porous rim, loss of sample by wicking and weeping is negligible."

Column 4, Line 30-40 of Jones states, "FIG. 6 is a schematic cross section of the apparatus of FIG. 5 in assembled form. The disk 50 is supported by the holder recessed region 42, and the disk rim 33 is clamped between ring 45 and the holder 40. A spring clamp (not shown) can be used to secure the assembly together. As can be seen, projection 43 of disk holder 40 centers the support on base 11. Upper projection 44 similarly centers the support in relation to funnel 10. The disk 50, in turn, is centered in the recessed region of holder 40, thereby centering the disk in the direct flow path between funnel output port 16 and base input port 15."

Column 5, Line 6-12 of Jones states, "A funnel 10 with threaded flanges 18 is assembled to SPE disk/holders assembly 40, 45, and 50 and secured. The utilization of external threads on the glassware and mating internal threads on the PTFE flow regulators/directors eliminate the use of traditional clamps 20 and makes the design more rugged and capable of providing the enhanced features described below."

Quotes From Sklar

Column 1, line 41 of Sklar states, "The upper body has a first rim portion defining an internal shoulder and a second rim portion defining an external shoulder having an inner wall surface. The lower body which serves as a conduit for leak-proof axial flow of filtered liquid therethrough comprises 1) an outer wall or shell having an upper rim portion that is telescopically engageable between the internal and external shoulders of the upper body, 2) a

transverse filter support, 3) an annular gasket, 4) a filter pad, and 5) a filter membrane. The annular gasket and the filter pad are preferably formed together as an integral unit. The rim portion of the external shoulder has locking open slot means, and the outer wall has tab means with radially outward projecting means such as an inclined wedge or pair of circumferentially spaced wedges that forms a lock fit with the locking slot means when the upper and lower bodies are aligned in telescopic engagement."

Column 2, line 16 of Sklar states, "The invention contemplates that the base may be formed with the tab means and the upper body may be formed with locking slot means or vice versa. In either case, the tab means are adapted to be releasable from the interlock by manually squeezing the tabs together."

Column 2, line 21 of Sklar states, " Preferably, as assembled, the periphery of the filter membrane is in direct sealing contact with, and is superposed upon the annular gasket, preferably so that the filter membrane lies flat upon the filter pad."

Column 2, line 33 of Sklar states, "and the lower rim of the internal shoulder being held under axial, fully sealing compression by contact with the periphery of the filter membrane which periphery is in direct compressive, fully sealing contact with the annular gasket."

Column 2, line 61 of Sklar states, "The upper body by itself is open at the top as shown in FIG. 2 and the opening may be sealed by a cap or closure 50 as shown in FIG. 1."

Column 3, line 12 of Sklar states, "The lower body as seen in FIGS. 1 and 4 also includes a filter support 34 for an annular gasket or resilient seal ring 35 which is integral with a filter pad 36 which in turn supports a porous filter membrane 37. When the assembly is fully telescoped, the periphery of the filter membrane is compressed by the rim portion 11 in direct sealing contact coextensively with the upper surface of the annular gasket. Also the filter membrane lies flat upon the filter pad."

Column 3, line 21 of Sklar states, " The lower body 30 further includes a pair of tab means 38 which can be flexed radially inwardly and which are part of and depend from the outer wall 31. The tab means are each formed at their outer wall surface with a projection 39 shaped at its outer surface for a lock fit, preferably as an inclined wedge shape, for matching and locking registry with the respective locking slots 16 of the upper body (shown in FIG. 1). The tab means are releasable from the interlock by manually squeezing the tabs together."

Column 3, line 41 of Sklar states, ``The lower body by itself is open at the top to receive the filtrate or permeate, and the opening may be sealed by a closure 50 (FIG. 4), which may be a common interchangeable closure for sealing the upper body (FIG. 1).''

Column 4, line 8 of Sklar states, `` The funnel 10 is then held with one hand, and the two tabs 38 are pinched with the thumb and index finger of the other hand to unlock the funnel 10 from the base 30.''

Column 4, line 11 of Sklar states, ``The funnel is then removed from the base and its cap 50 is removed and placed on the open end of the base (as in FIG. 4).''

Column 4, Line 30-34 of Sklar states, ``The filter assembly may be made from conventional materials. The funnel 10, base 30 and closure 50 preferably, for better viewing of the contents, are made of transparent plastic materials which preferably are polystyrene (funnel and base) and polyethylene (closure).''

Quotes From Simpson

Column 1, line 1 of Simpson states, ``This invention relates to closures for collapsible tubes and its general object is to provide a cap that can be applied and removed with respect to the tube almost instantly yet when in applied position, casual displacement or removal is practically impossible.''

Column 1, line 35 of Simpson states, ``Referring to the drawing in detail, the letter A indicates the body of the tube which as shown is of the usual construction in that it includes a shoulder that has formed thereon a neck 1 which forms a part of the present invention.

The neck is slightly tapered inwardly from adjacent its connection with the shoulder''

Column 1, line 41 of Simpson states, ``The neck is slightly tapered inwardly from adjacent its connection with the shoulder and has a plurality of exteriorly disposed circumferentially arranged grooves, each of which is provided with a horizontal portion 2 that merges at one end into an upwardly inclined portion 3. The horizontal portions of the grooves are of the same depth throughout the length thereof, but the depth of the upwardly inclined portions decrease until they merge into the outer surface of the neck, as clearly shown in Figure 4, in order that the grooves will simulate a means in the form of segments of screw threads, for a purpose which will be presently apparent.''

Column 2, line 3 of Simpson states, ``The cap includes a domed shaped top 4 that has depending therefrom inwardly of the outer edge thereof a skirt 5, the latter being provided with vertical slots 6 providing segments 7, and it will be apparent that due to the slots 6, the segments possess a certain amount of resiliency.''

Column 2, line 12 of Simpson states, ``The segments 7 have extending inwardly from the inner surface thereof for disposal midway the ends, teats or studs 8, to be received in the grooves in a manner which will be presently described.''

Column 2, line 22 of Simpson states, ``Due to the resiliency of the segments 7, and the tapered formation of the neck 1, it will be obvious that the cap can be disposed on the neck, by applying slight pressure to the cap, as the pressure will cause the studs 8 to ride over the neck until they fall in the grooves; therefore the cap can be applied instantly and merely by snap action. The cap can be likewise be removed very expeditiously in that slight rotation will cause the studs 8 to ride up into the inclined portions 3 which due to the cam action thereof on the studs will move the segments outwardly and thereby release the cap.''

Column 2, line 35 of Simpson states, ``The annular space between the skirt 5 and the projection 9 at their juncture with the undersurface of the top 4, forms a seal for a gasket, as shown, and which of course provides a leak proof connection between the cap and the neck of the tube.''

ADDENDUM II

Sernaker, Orthopedic Equipment Co. v. United States, Uniroyal Inc, v. Rudkin-Wiley Corp., and Ex parte Levengood

It is well known that in order for any prior-art references themselves to be validly combined for use in a prior-art § 103 rejection, *the references themselves* (or some other prior art) **must** suggest that they be combined. E.g. as was stated in **In re Sernaker** 217 U.S.P.Q. 1, 6 (C.A.F.C. 1983):

``Prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings.''

That the suggestion to combine the references **should not come from applicant** was forcefully stated in *Orthopedic Equipment Co. v. United States*, 217 U.S.P.Q. 193, 199 (CAFC 1983):

``It is wrong to use the patent in suit [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here in claims pending]. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness in a court of law [here the PTO].''

As was further stated in *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 5 U.S.P.Q.2d 1434 (C.A.F.C. 1988) ``[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself.... *Something in the prior art must suggest the desirability and thus the obviousness of making the combination.*'' [Emphasis supplied.]

In line with these decisions, recently the Board stated in *Ex parte Levengood*. 28 U.S.P.Q.2d 1300 (P.T.O.B.A.&I. 1993):

``In order to establish a *prima facie* case of obviousness, it is necessary for the examiner to present evidence, preferably in the form of some teaching, suggestion, incentive or inference in the prior art, or in the form of generally available knowledge, that one having ordinary skill in the art

would have been led to combine the relevant teachings of the applied references in the proposed manner to arrive at the claimed invention.... That which is within the capabilities of one skilled in the art is not synonymous with obviousness. ...That one can reconstruct and/or explain the theoretical mechanism of an invention by means of logic and sound scientific reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of ordinary skill in the art to combine the teachings of the references to make the claimed invention.... Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of ordinary skill in the art, that 'would lead' that individual 'to combine the relative teachings of the references.'Accordingly, an **examiner cannot establish obviousness** by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done.''